A Guide to Waste Lamps

and

Ballast Management

Provided by the Utah Department of Environmental Quality
Division of Solid and Hazardous Waste
P.O. Box 144880
Salt Lake City, Utah 84114-4880

Waste Lamps & Lamp Ballasts

This fact sheet provides guidance to individuals that create and manage waste lamps and lamp ballasts. Complete management regulations can be found in the Code of Federal Regulation (CFR), Title 40 Part 261 and 273 and the Utah Administrative Code (UAC), Rule R315-2 and Rule R315-16.

Environmental Concerns

Fluorescent lamps and High Intensity Discharge (HID) lamps, including mercury vapor, high pressure sodium, and metal halide lamps, can contain levels of mercury and lead that make them hazardous waste when disposed. Mercury and lead are toxic metals that can accumulate in living tissue and cause adverse health effects. When a lamp is broken, placed in a landfill or incinerated, metals are released into the environment that may contaminate air, land, or water.

Lamp ballasts manufactured prior to 1978 are assumed to contain Polychlorinated Biphenyls (PCBs). When released into the environment, PCBs persist for many years and bioaccumulate in organisms. Studies have shown that PCBs cause cancer in animals and repeated exposure to PCBs has shown adverse reproductive and developmental effects in animals. Exposure to PCBs can cause liver damage, nausea, dizziness, eye irritation and bronchitis in humans.

Management of Lamps as Universal Waste

The Universal Waste Rule was designed to encourage the collection and recycling of certain hazardous wastes that are generated by a wide variety of businesses and institutions. Depending on your individual situation, other options may be preferred to managing your waste lamps as universal waste. Summaries of the waste management options are presented in the table below. For specific requirements, refer to the rules listed in the table of this fact sheet.

Advantages of Managing Waste Lamps Under The Universal Waste Rule Are:

- Universal wastes are not counted towards hazardous waste generator status;
- No manifesting required unless the waste lamps are transported through states or treated or disposed in states that do not recognize mercury-containing lamps as a universal waste;
- Increased storage time available;
- Reduced administrative requirements for recordkeeping, training, and emergency preparedness.

Universal Waste Management Requirements

Handlers of waste lamps managed under the universal waste rule must:

- Manage lamps in a way that prevents releases of the waste to the environment;
- Contain lamps in containers such as cardboard boxes or fiber drums, which are adequate to prevent breakage;
- Keep containers closed;
- Minimize lamp breakage and immediately clean up any broken or damaged lamps;
- Store broken lamps in a closed structurally sound container.

Universal waste handlers are prohibited from crushing lamps, or diluting lamps with other wastes. Waste lamps must be sent to a universal waste destination facility for recycling or disposal.

Labeling and Marking

Each container of waste lamps must be labeled or clearly marked with the following words or phrases: "Universal Waste-Lamps", "Waste Lamps" or "Used Lamps."

Accumulation Time

Waste lamps may be accumulated for up to one year. Accumulation of universal waste lamps longer than 1 year may be permitted if the handler can demonstrate to the Division that more time is needed to accumulate the quantities necessary to facilitate proper recovery, treatment or disposal.

Mercury Containing Lamp Management Options

Management as:	Conditions	Applicable Rules	Comments
Universal Waste	Management of waste subject to applicable universal waste management standards.	40 CFR Part 273* UAC R315-16**	The Universal Waste Rule was written to encourage collection and recycling of wastes. Waste lamps are subject to hazardous waste management standards if treated or disposed.

Conditionally Exempt Hazardous Waste	Waste lamps must be from a conditionally exempt small quantity generator (<220/lbs month in the aggregate, and never > 2,200lbs on-site).	40 CFR 261.5 UAC R315-2-5.	Waste lamps may be disposed of in a solid waste landfill, but only with the permission of the landfill operator.
Solid Waste	Waste lamps must not exhibit hazardous waste characteristics.	40 CFR 262.11 UAC R315-5-1.11	Specially designed low mercury lamps should not exhibit hazardous waste characteristics.
Hazardous Waste	Generator must comply with applicable hazardous waste management regulations.	40 CFR 260-266, 268 UAC R315-1 to R315-9 and R315-13	Most stringent. Waste must be manifested to an approved hazardous waste treatment storage or disposal facility.

**40 CFR refers to Tittle 40 of the Code of Federal Regulations and contains the Federal environmental regulations*
*** UAC refers to the Utah Administrative Code and contains the State environmental rules.*

Management of Waste Lamps as Hazardous Waste

Generators of waste lamps may decide, in lieu of management as universal waste, to manage their waste lamps as hazardous waste. Management of lamps as hazardous waste is more restrictive than under the universal waste rule and, depending on the aggregate amount of hazardous waste generated, may:

- Restrict the time wastes can be accumulated on-site.
- Require additional training, emergency preparedness and contingency plans to be developed;
- Require biennial reporting of wastes generated.

Conditionally Exempt Hazardous Waste

Waste lamps may be managed as conditionally-exempt small quantity generator waste if the generator of the waste is a conditionally-exempt small quantity generator. A conditionally-exempt small quantity generator is a generator that produces less than 220 pounds, in the aggregate, of hazardous waste per month. When determining if they are conditionally-exempt, hazardous waste generators must count all hazardous waste (lamps as well as all other hazardous waste) generated at their location during the calendar month.

To remain "conditionally-exempt" from the more stringent hazardous waste management requirements, generators who produce less than 220 pounds of hazardous waste must:

- Never accumulate more than 2,200 pounds of hazardous waste on-site, and
- Ensure delivery of their waste to a hazardous waste disposal or recycling facility, or a permitted solid waste disposal facility. (Note: Not all solid waste disposal facilities are willing to accept hazardous waste, even from conditionally-exempt generators). For instance, solid waste landfills in Salt Lake County will not knowingly take hazardous waste from conditionally-exempt generators or even hazardous wastes from households. Salt Lake County does however, have programs in place to assist in the management of these waste streams. If you have questions please contact them at (801) 541-4078 or call the Salt Lake Valley Health Department, Division of Environmental Health, Bureau of Water Quality and Hazardous Waste at (801) 313-6700.

Crushing Lamps

The crushing of waste lamps is prohibited under the universal waste rule, however crushing is permitted in a properly equipped mercury filtered lamp crusher if the waste is to be managed as hazardous waste.

Crushing is allowed provided that the generator of the lamps:

- Crushes lamps in a well-ventilated and monitored area to ensure compliance with applicable OSHA exposure limits for mercury;
- Ensures that employees crushing lamps are thoroughly familiar with proper waste mercury handling and emergency procedures; and
- Stores crushed tubes in closed, non-leaking containers.

When making a decision to crush lamps please be aware that the crushing may add additional cost to prepare lamps for disposal or recycling. In addition, lamp recyclers may prefer whole lamps to crushed ones. Crushing units also can pose health and environmental risks because of the release of mercury vapors

Management of Waste Lamps as Solid Waste

Waste lamps may be managed as solid waste if they do not exhibit a hazardous waste characteristic. In most cases the exhibited characteristic will be for mercury. Some waste lamps used in special situations, such as photo processing, or larger HID lamps, can also exhibit hazardous waste characteristics for cadmium or lead. To manage waste lamps as solid waste, a generator must first determine that their lamps do not exhibit a hazardous waste characteristic. A generator must do this by either:

- Testing a representative sample of the waste, using the Toxicity Characteristic Leaching Procedure (TCLP); or,
- Applying process knowledge of the waste. In this case, knowledge of the waste could be obtained from the manufacturer. Lamp manufactures now offer low mercury lamps that do not exhibit hazardous waste characteristics. Be sure to have documentation from the manufacturer that the lamps you are using have been tested and are not hazardous waste. You must be able to demonstrate that the data used in your waste determination is for the type of lamps (i.e., the brand and model you are disposing).

Management of Lamp Ballasts

Light ballasts are the primary electrical components of fluorescent light fixtures and are generally located within the fixture under a metal cover plate. In older ballasts, a tar-like substance surrounds the components of the ballast and is there to muffle the noise that is inherent in the operation of these ballasts.

Before the U.S. Environmental Protection Agency (EPA) banned the manufacture of PCBs in 1978, PCBs were commonly used in ballasts. All lamp ballasts manufactured since 1978, which do not contain PCBs, should be marked by the manufacturer with the statement "No PCBs."

For ballasts manufactured prior to 1978, or for those that do not contain a statement regarding PCB content, you should assume that they contain PCBs.

If the ballast contains PCBs, there would be approximately 1 to 1.5 ounces of PCBs. If the ballast fails, PCBs may drip out of the fixture. If it does, measures should be taken to limit or avoid personal exposures.

Disposal of Ballasts Containing PCBs

The best option for non-leaking PCB ballasts is to recycle them at a facility with EPA approval for recycling PCB ballasts. Use a broker with EPA interim status or a PCB commercial storage facility to transport them to the recycling facility. Non-leaking PCB ballasts that are not recycled must be managed and disposed at a PCB disposal facility.

Leaking PCB ballasts must be managed as PCB waste and disposed in a facility regulated under the Federal Toxic Substance Control Act (TSCA).

Need technical assistance managing waste?

Call (801) 538-6170 for a telephone consultation or to arrange for a complimentary on-site visit for Small Quantity Generators.

RECYCLING RESOURCES

This is not a complete list of companies who provide recycling and disposal services throughout the United States. The EPA or the State of Utah's Division of Solid and Hazardous Waste do not endorse companies listed. EPA does not screen listed companies and cannot confirm the methods these companies may use in their recycling process. For further information regarding lighting disposal please see the EPA website at http://www.epa.gov/epaoswer/hazwaste/id/univwaste.html. You may also find additional information at these sites:
www.ecolights.com
www.fluorecycle.com
www.mwsi.com
www.ehso.com
www.bulbs.com

State/Regional Information

US EPA Region 8
1595 Wynkoop Street
Denver Colorado 80202-1129
(303) 312-6312
(800) 227-8917
www.epa.gov/region8

State of Utah
Department of Environmental Quality
Division of Solid and Hazardous Waste
P.O. Box 144880
Salt Lake City, UT 84114-4880
(801) 538-6170
(801) 538-6715 – fax

RCRA, TSCA and CERCLA Information

Toxic Substances Control (TSCA)
Assistance Information Hotline
(202) 554-1404

NEMA (National Electrical Mfg. Assoc.)
1300 North 17th Street Suite 1752
Rosslyn, VA 22209
(703) 841-3200
www.nema.org

Recyclers (lights, tubes, ballasts, ballasts containing PCBs, mercury containing ballasts)

Safety Kleen
1066 South Pioneer Road
Salt Lake City, UT 84104
(801) 975-0742

Onyx Environmental
709 North Taylor Way, Suite 1
North Salt Lake, UT 84054
(801) 294-7111
contact: Rob Yorasik

Veolia Environmental Services
5736 W. Jefferson
Phoenix, AZ 85043
(800) 368-9095
(602) 233-2955 - fax
contact: Heath Hildebrand
heath.hildebrand@veoliaes.com
http://veoliaes-ts.com/facilities/phoenix%20%20az

Earth Protection Services, Inc.
10 South 48th Ave., Suite 4
Phoenix, AZ 85063 – 3820
(800) 588-7190
www.earthpro.com

USA Lamps & Ballasts Recycling
5366 East Este Ave.
Cincinnati, OH 45232
(800) 778-6645
contact: John Fostino

Air Circle corporation
2000 S. 25th Avenue, Suite C
Broadview, IL 60155
(800) 909-9709
www.aircircle.com

Mercury Waste Solutions/US Lights
21221 Durand Avenue
Union Grove, WI 53182
(800) 741-3343
www.mwsi.com

HID Recycling
32000 Aurora Road
Solon, OH 10474
(800) 200-9716
contact: Jeff Patterson
www.hihirect.com

Lighting Resources
1522 East Victory Street #4
Phoenix, AZ 85040
Contact: Barry Rathkamp
(800)866-6818

Lighting Resources
805 East Francis St.
Ontario, CA 91761
(888)923-7252
contact: Erica Ascencio
www.lightingresourcesinc.com